

662080" 42859260

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Fig. 1

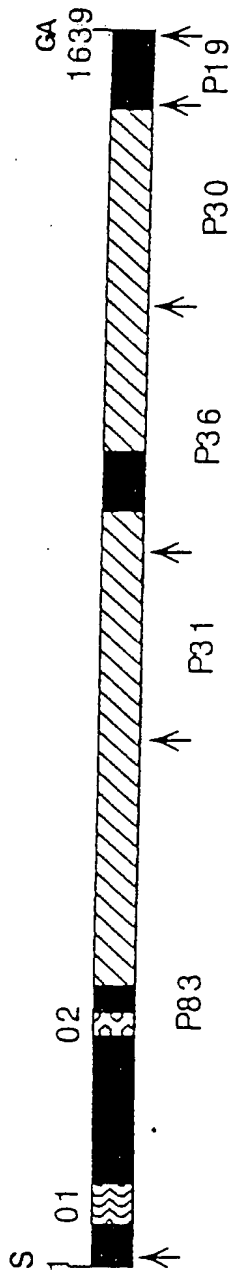


Fig. 2

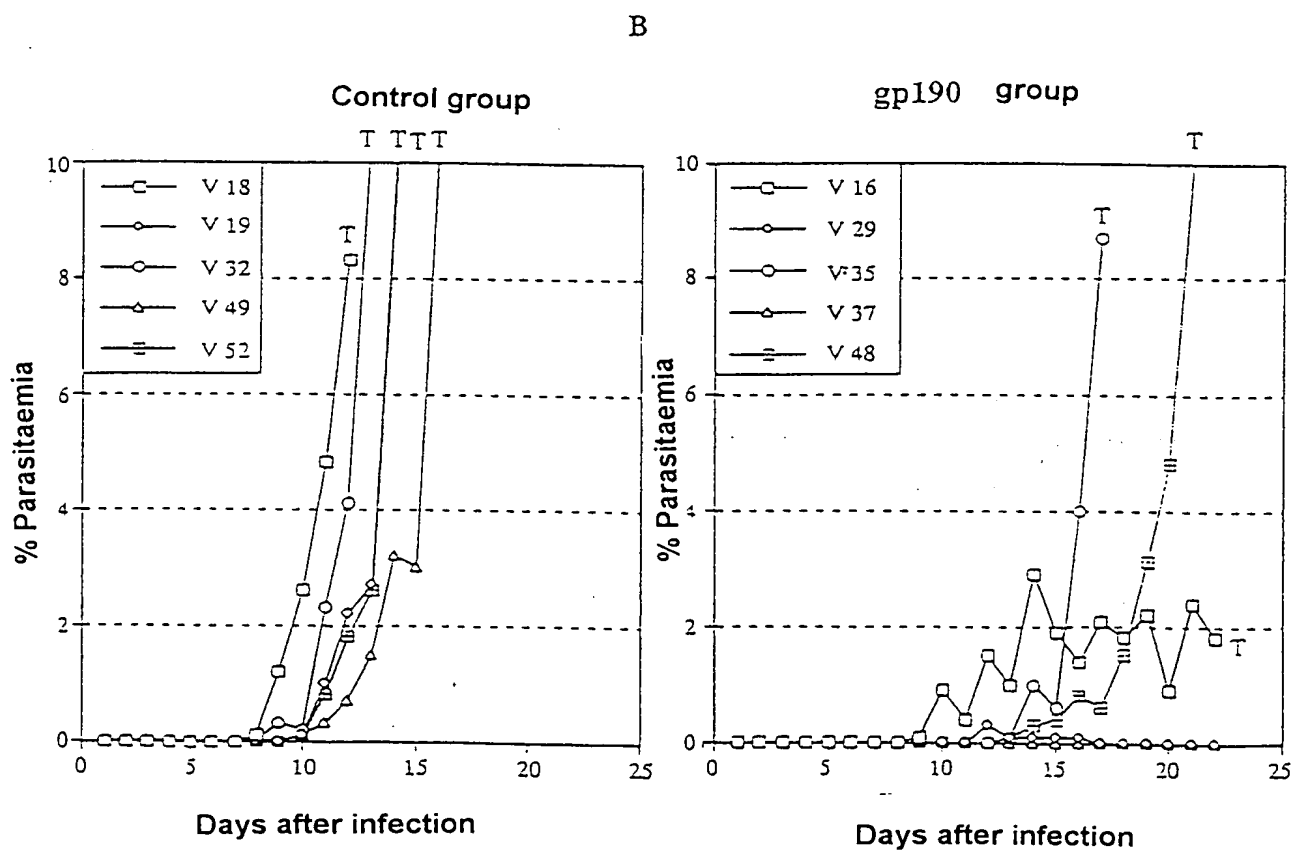
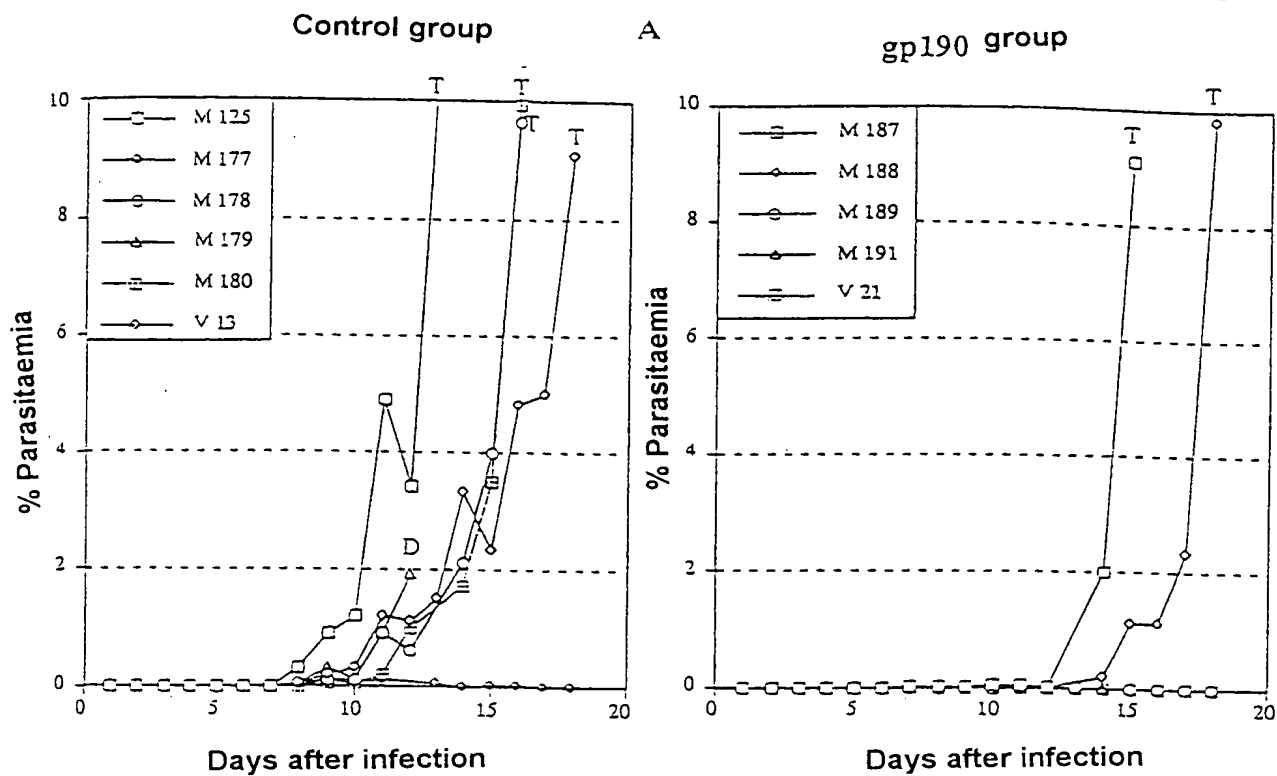


Fig. 3A

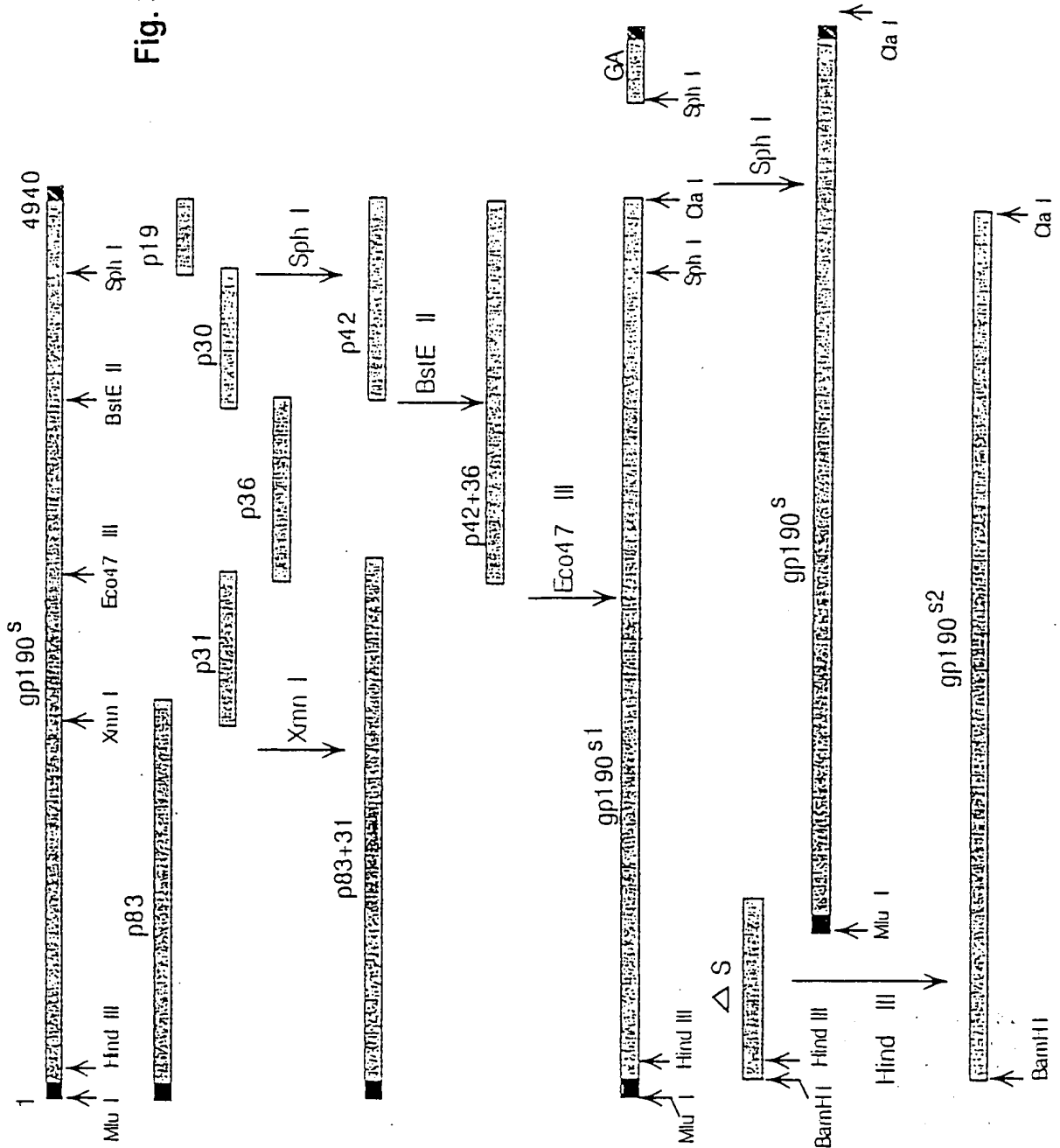


Fig. 3B

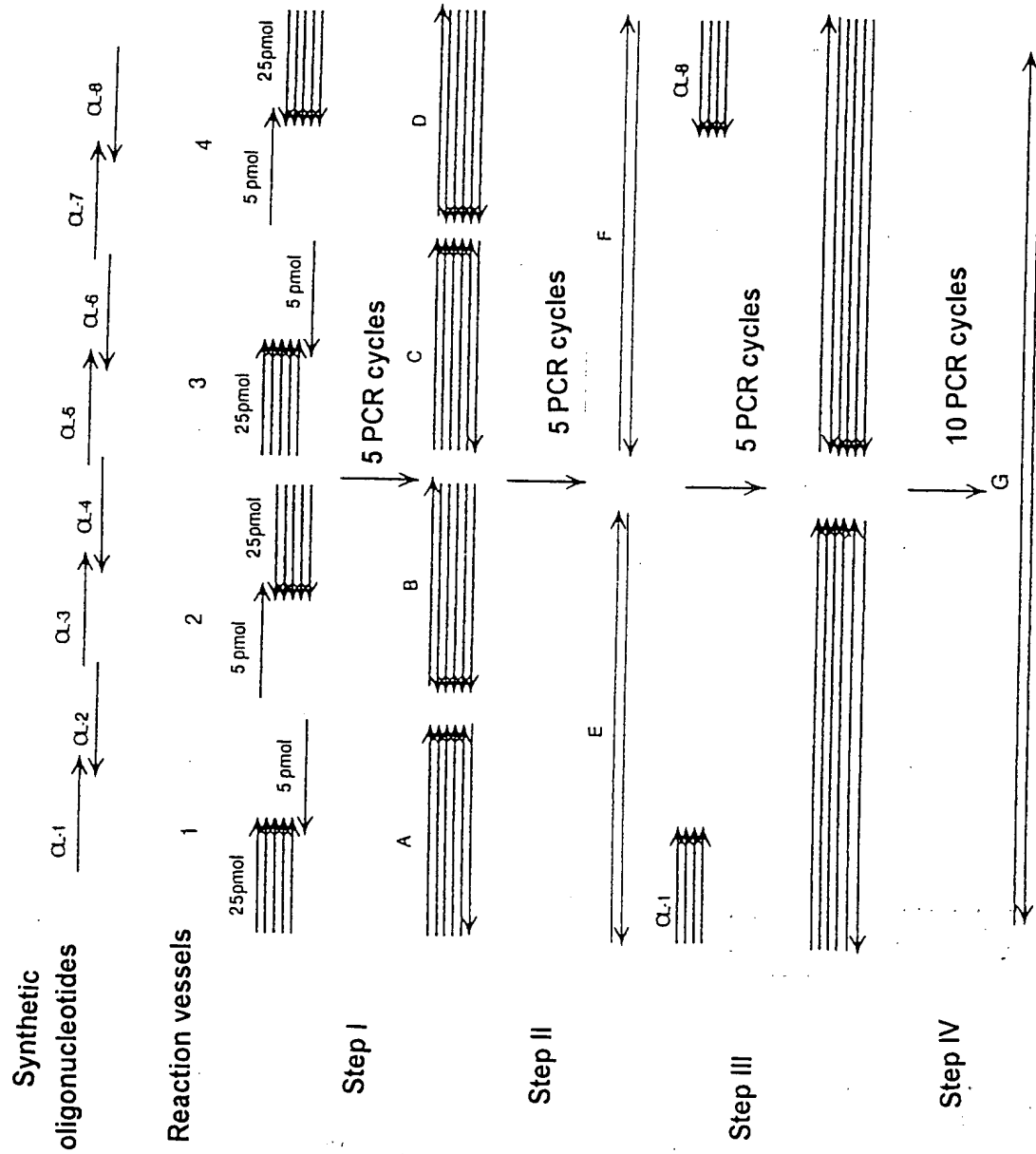


Fig. 3C

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DNA sequence of the native (gp190n) and of the synthetic gene (gp190s) for gp190 from FCG-1

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AS      M K I I F F L C S F L F I I N T Q C V T H E S Y Q E      27
gp190n G A T T A T A A A T A G T A A
gp190s CCGACCGGATGAAATCATTTCTCTCTGTTTCATTCTGTTTTTTATCATCAATACTCAGTCCGTGACCCACGAATCCTATCAGGAG      90
      HLU 1

AS      L V K K L E A L E D A V L T G Y S L F O K E K H V L N E G T      57
gp190n T C A A A A A T G A T T T A T A A A A T A A A
gp190s CTGGTTAAGAAACTGGAAGCTTTGGAAGATGCCCTTACCGGATACAGCTGTTCCAGAAGGAGAAGATGGTCTGAATGAAGGGACG      180

AS      S G T A V T T S T P G S K G S V A S G G S G G S V A S G G S      87
gp190n A A T T T T A G T A T T C A T A C A T T A T C A
gp190s AGTGGCAGCGCGCTTACACACGACACCCGGTTCATAAGGGTCTGTGGCTAGCGGTGGCTCCGGTGGGTCTGTGGCTCTGTGGGTCTCC      270

AS      V A S G G S V A S G G S V A S G G S G N S R R T N P S D N S      117
gp190n T T A T T C A T T T T T T T T T T T T T T T T T T T T T T T T T T T T T T T T T T T T T T T T T T
gp190s GTCCGCTCCGGCGGCGGAGCTGGCATCAGGTGGCTCAGTGGCAAGCGCGGTTCGGGAACAGTCGAAGAAGCAATCCATCTGACAACCTCT      360

AS      S D S D A K S Y A D L K H R V R N Y L L T I K E L K Y P O L      147
gp190n T A T T A T T T T A A A A C T C T G T A A A C A T T T A C C
gp190s AGCGATTCCGACGCCAAGTCTACGCCGACCTCAAGCAGCGAGTGAGAACTATCTCTCACTATCAAGGAGCTGAAGTACCCACAGTTG      450

AS      F D L T N H M L T L C D N I E G F K Y L I D G Y E E I N E L      177
gp190n T T A T A A T A T T T A T T A T T A T T A T T A T T A
gp190s TTCGACCTCACTAATCATATGCTGACAGTGTGTGATAACATTCATGGCTTCAAATATCTGATTGACGGTTACGAAGAGATCAATGAAGTCT      540

AS      L Y K L N F Y F D L L R A K L N D V C A N D Y C Q I P F N L      207
gp190n T A T A A C T T T T T A T A A T A T A T T T T T T T T T T T T T T T T T T T T T T T T T T T T T T
gp190s CTGTACAAGTTGAATTTCTACTTCGACTTGGCAAGGGCCAAACTGAATGAGCTTTGGCCCAATGACTATTGTCAAATTCATTCAATTTG      630

AS      K I R A N E L D V L K K L V F G Y R K P L D N I K D N V G K      237
gp190n A T C T A T A A C T A A C T A C T C A A A A T A T A T A T A T A T A T A T A T A T A T A T A T A T A T A
gp190s AAGATCAGAGCCCAAGAGTTGGAGCTATTGAAGAAGTTGGCTCTCCGATATCCGAAGCCTCTCGACAACTCAAGGACAATGTGGGAAAG      720

AS      H E D Y I K K N K K T I E N I N E L I E E S K K T I D K N K      267
gp190n C A A A A A A T A T A T A T A T A T A T A T A T A T A T A T A T A T A T A T A T A T A T A T A T A
gp190s ATGGAAGATTATATTAAAAAAGAAATAGAAGACCATCGAGAACATTAACGAGCTGATCGAAGAATCCAAAAGACCATAGACAAAAATAAG      810

AS      N A T K E E E K K K L Y Q A O Y D L S I Y N K Q L E E A H N      297
gp190n T A A A A A A A A A A A A T A T T T T T T T T T T T T T T T T T T T T T T T T T T T T T T T T T T
gp190s AATGCAACCAAGGAGGAAGAAAGAAAGAGTTGTACCAGGCCAGTACGAGCTGTCCATCTATAACAAACAGCTTGAAGAAGCCCATAAC      900

AS      L I S V L E K R I D T L K K N E N I K E L L D K I N E I K N      327
gp190n T A A T T A A A A T T T T A A A A C T G T A T T T A A A
gp190s CTCATCAGCGTACTGGAGAAGCGCATAGACACCCCTCAAGAAGAATGAAAAATATCAAAGAACTGCTCGACAAGATTATGAAATTAAGAAT      990

AS      P P P A N S G N T P N T L L D K N K K I E E H E K E I K E I      357
gp190n C A G T A T A A T A T T C T T A A C A A A A A A T
gp190s CCTCCGCCAGCCCACTCTGGCAACCCCTAACACGCTGCTGGACAAGAACAAGAAGATAGAGGAGCAGGAGAAGAGATCAAGAGAGATC      1080

AS      A K T I K F N I D S L F T D P L E L E Y Y L R E K N K N I D      387
gp190n T A T T T A G T A A A T A A T A A T A A A A A T T
gp190s GCCAAAACCAATTAAGTTCAACATAGATTCTCTCTTTACTGATCCGCTTGAGCTGGAGTACTACTTGAGAGAGAAGAATAAGAATATAGAC      1170

AS      I S A K V E T K E S T E P N E Y P N G V T Y P L S Y N D I N      417
gp190n A A G T A G T A T C A A A A A A A A A A A A T T T T T A
gp190s ATCTCGGCCAAAGTCGAGACAAAGGAATCAACCGAACCCTAATGAATATCCCAATGGTGTGACGTACCCTCTGTCTTTAATACGATATCAAC      1260

AS      N A L N E L N S F G D L I N P F D Y T K E P S K N I Y T D N      447
gp190n T T A T A T T C T T T A T A T A T A A A A A C A T T T
gp190s AACGCTCTCAACGAGCTCAATAGCTTCGGTGACTTGACTAACCCGCTTCGATTATACGAAAGAAGCCCTCTAAGAATATCTACACAGACAAT      1350

AS      E R K K F I N E I K E K I K I E S D K K S Y E D R      477
gp190n A A A C A T A A A T A A T A A A A A A T C T A T C
gp190s GAGAGAAGAAGTTTATCAACGAATCAAGGAGAAGATCAAAATTCAGAAGAAGAAATTCAGAGTGACAAGAAAAGTTACGAAGACCCG      1440

AS      S K S L N D I T K E Y E K L L N E I Y D S K F N N N I D L T      507
gp190n T C T G T C T T A A A A A T A T T T A T A G T T A T T A T
gp190s AGCAAAAGTCTAAACGATATCACTAAAGAGTATGAAAGGCTGCTGAACGAGATCTATGATTCCAAATTCACAAATACATCGACCTGACC      1530

AS      N F E K M M C K R Y S Y K V E K L T H E N T F A S Y E N S K      537
gp190n T A A T A T T T T T T T T T T T T T T T T T T T T
gp190s AACTTCGAGAAAATGATGGGAAAAGGCTACTCTTACAAAGTGGAGAAGTACACACCATATACCTTTGTCATCTATGAGAATTCTAAG      1620

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| | | | |
|--------------------|--|---|-----|
| | AS | H N L E K L T K A L K Y M E D Y S L R N I V U V E K E L K Y Y | 567 |
| gp190 ⁿ | A T A A A A T T A A T A A T A T A T A T A T A T | | |
| gp190 ^s | CATAATCTTGAGAAGGCTCACCAAAGCGTCTTAAGTATATGGAGGACTATTCTCTGCCGAACATTTGTGTGGAGAAAAGCACTAAGTATTAC | 1710 | |
| AS | K N L I S K I E N E I E T L V E N I K K D E E Q L F E K K I | | |
| gp190 ⁿ | A T A C A A T T A A T A A A G A T A A C T A A A A | | |
| gp190 ^s | AAGAATCTCATAGTAAGATCGAAAAAGGAGATCGAGAGCGTCCTGTGGAACAATTAAGAAGGATGAAGAACAGTTGTTTTGAGAAGAAGATT | 1800 | |
| AS | T K D E N K P D E K I L E V S D I V K V Q V Q K V L L M N K | | |
| gp190 ⁿ | T A A T T A A A T C A A T A A T T A T A | | |
| gp190 ^s | ACAAAAGACGAAAATAAACAGATGAGAAGATCGTGAGGCTCTCCGATATTTGTTAAAGTCCAAGTGCGAGAGCGTGCTCTCATGAACAAAG | 1890 | |
| AS | I D E L K K T O L I L K N V E L K B N I H V P N S Y K Q E N | | |
| gp190 ⁿ | C T A A T C T A A T A A T C C A A A | | |
| gp190 ^s | ATTGATCAACTCAAGAAGACTCAACTCATTCTGGAAGACGTGGAGTTAAACATAATATACATGTCGCCAATATTTATAAGCAGGAGAAT | 1980 | |
| AS | X Q E P Y Y L I V L K K E I D X L K V F M P K V E S L I N E | | |
| gp190 ⁿ | A T T T A T G T C A A T T T A T G A A T C A A T C A A T C A T A T | | |
| gp190 ^s | AAGCAGGAACCATACCTCATCGTACTCAAGAAAAGAGATAGACAAACTGAAAGTGTTCATGCCCAAAGTGCGAGAGCGCTGCATCAACGAA | 2070 | |
| AS | E K K N I K T E G Q S D N S E P S T E G E I T G Q A T T K P | | |
| gp190 ⁿ | A A A A A T A G T G A A A C A A A A A A A A A A A A A A | | |
| gp190 ^s | GAGAAGAAGAACATTAATAACTGAAGGACAGTCAGATAACTCGGAGCTTCCACAGAAGGAGAGATAACCGGACAGGCTACGACCAAGCCCC | 2160 | |
| AS | G Q Q A G S A L E G D S V Q A Q A Q E Q K Q A Q P P V P V P | | |
| gp190 ⁿ | A A A T T A A T C A A A A A A A A A A A A A A A A A | | |
| gp190 ^s | GGACAACAGCGCGGTTGAGCTCTCGAAGCGGATAGCGTCCAAGCTCAAGCACAAAGAGCAGAAGCGGACAGCGCTCCAGTGCAGTGGCCC | 2250 | |
| AS | V P E A K A Q V P T P P A P V N N K T E N V S K L D Y L E K | | |
| gp190 ⁿ | A A A A C A A A A A A A A A A A A A A A A A A A | | |
| gp190 ^s | GTTCCAGAGGCTAAAGCTCAAGTGCTACACCAGGCTCTGTGAATAACAAAGCCGAGAATGTCAGCAAATCGGACTACCTTGAGAG | 2340 | |
| AS | L Y E F L N T S Y I C H K Y I L V S E S T M N E K I L K Q Y | | |
| gp190 ⁿ | T A A T T A T A T A T T T G T A T C A A A T A A A T | | |
| gp190 ^s | CTCTATGAGTCTCGAATACATCTTACATCTGCCACAAATATATCTCTGTTCTCTCACAGCACTATGAACGAGAAGATTTCTTAACAGTAG | 2430 | |
| AS | X I T K E E S K L S S C D P L D L L F N I Q N N I P V H Y | | |
| gp190 ⁿ | A T A G A C A C T A A G T A T A T A T A A T A T A T A | | |
| gp190 ^s | AAGATAACCAAGGAAGAGGAGAGTAAGTCTCTCTGTCATCCACTGGAGCTGTCTGTCAATATCCAGACAACATTTCCGCTTATGTAT | 2520 | |
| AS | S M F D S L N N S L S Q L F H E I Y E K E M V C N L Y K L K | | |
| gp190 ⁿ | T - T A A G T A A A T A T A A A A T T T T A T G | | |
| gp190 ^s | TCTATGTCGATAGCGCTCAACAATCTCTCTCTCAACTGTTCATGGAGATATATGAGAAGGAGATGGTCTGCAACCTGTATAAACTCAAA | 2610 | |
| AS | D N O K I K N L L E E A K K V S T S V K T L S S S S M Q P L | | |
| gp190 ⁿ | T T A A T T A A G A A A A A T A A G T T C A T A | | |
| gp190 ^s | GACAACGACAAGATTAAAGAAGCTCTCTGGAGGAAGCTAAGAAGGCTCTCCAGCTCTGTAAAACTCTCTCTCCAGCTCCATGCAACCACTG | 2700 | |
| AS | S L T P Q D K P E V S A N D D T S E S T N L N N S L K L F E | | |
| gp190 ⁿ | A T A G T A A T A T T T A A T T A T T G T A G T T A T A A | | |
| gp190 ^s | TCTCTCACAGCTCAAGACAAGCGGAGTGAGCGCTAACGACGACAGCTCTCACTCGACCAAGCTTAATAACTCACTGAAAGCTGTTTGAG | 2790 | |
| AS | N I L S L G K N K N I Y Q E L I G O K S S E N F Y E K I L K | | |
| gp190 ⁿ | A T A G T A A C A T A T A A T A A G T A T T A T A T A | | |
| gp190 ^s | AACATCTGTCTCTCGGCAAGAATAAGAACATCTACCAAGAAGTTATTGGACAGAAATCTGCGAGAAGTTCTACGAGAAGATCTGAAA | 2880 | |
| AS | D S D T F Y N E S F T N F V K S K A D D I N S L N D E S K R | | |
| gp190 ⁿ | T T T T T A T C T T A T T A T T T A T T A T T A T T A T | | |
| gp190 ^s | GACAGCGACACATCTATAACGAGAGCTTCACTAACTTCGTGAAATCTAAAGCGGATGATATCAACTCTCTTAACGATGAATCTAAAGCT | 2970 | |
| AS | K K L E E D I N K L K K T L O L S F D L Y N K Y K L K L E R | | |
| gp190 ⁿ | A T A A T T A A A T T A A G T A T C A T A T T A T T A T A | | |
| gp190 ^s | AAGAAGCTGGAAGAGGACATCAATAAGCTGAAGAAGACACTGCAACTGAGCTTCCAGCTGTACAACAGTACAAACTGAAACTGGAGAGA | 3060 | |
| AS | L F D K K K T V G K Y K M Q I K K L T L L K E O L E S K L N | | |
| gp190 ⁿ | T A T T A A T T A A A A T A A C T T A T A A A A T A T C A T G T | | |
| gp190 ^s | CTCTTCGACAAGAAGAGACAGTCCGCAAGTATAAGATGCAGATCAAGAAGTTGACTCTGTCTCAAGGAGCAGCTTGAAAGCAAAGCTCAAC | 3150 | |
| AS | S L N N P K H V L Q N F S V F F N K K K E A E I A E T E N T | | |
| gp190 ⁿ | T T C A G T T A A T T T T A A A T A A A A A T A A | | |
| gp190 ^s | TCAGTGAACAATCCGAAACACGTACTGCAGAACTTCTCAGTGTCTCTCAACAAGAAGAAGGAAGCGGAGATCGCGAGACAGAGAACACT | 3240 | |
| AS | L E N T K I L L K H Y K G L V K Y Y N G E S S P L K T L S E | | |
| gp190 ⁿ | T A A A A A T A T G T T A T T A T A A A T A A A T A A G T A | | |
| gp190 ^s | CTGGAGAACACCAAGATTCTTCTCAAAACACTACAAAGCGCTCGTCAAGTATTATAATGCCGAGCTTCTCTCTGTAAGACTCTCTCCGAG | 3330 | |
| AS | E S I Q T E D N Y A S L E N F K K S K L E G K L K D N L N | | |
| gp190 ⁿ | A T C A T A A A T T T A A T A T A A T A A T A A T A T T A T | | |
| gp190 ^s | GAGAGCATCGAGAGCGAGGATAACTACGCCAGCGCTCGAGAAGTTCAAGGCTCTGTCTAAGTCAAGGCAAGCTGAAGGACAACCTGAAC | 3420 | |

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AS L E K K K L S Y L S S G L B H L I A E L K E V I K N K N Y T 1167
 gp190ⁿ T A A A A T A T C A T A A T T A T T A T T A T A A A A A T A T T A
 gp190^s C T G G A G A A G A A G C T C A C C T C T A G C G G A C T G C A T C A C C T G A T C G C C G A G C T C A A G G A A G C T A T T A A G A A C A A G A A C T A C C C 3510

AS G N S P S E N N T D V N N A L E S Y K K F L P E G T D V A T 1197
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 gp190^s G G C A A T A G C C C A A G C G A G A A T A T A C A G A C T G A A T A C C A A G A G T C C T G C C T G A A G G A A C A G A T G T C C C A C T 3600

AS V V S E S G S D T L E Q S Q P K K P A S T H V G A E S N T I 1227
 gp190ⁿ T A A G A G A T A A A A A G A A A A A A A T C A A T C A
 gp190^s G T G G T G T C T G A A T C T G G C T C C G A C A C A C T G G A G C A G T C T C A A C C T A A G A A G C T G C A T C T A G T C A T G T C G G A G C C G A G T C C A A T A C A A T T 3690

AS T T S Q N V D D E V D D V I I V P I F G E S E E D Y D D L G 1257
 gp190ⁿ A A A A T T A A A A A A A A A A A A A T A A T C A A A T T T A A
 gp190^s A C C A C A T C T C A G A A C C T G A C G A T G A G G T C G A T G A C G C A T C A T T G T G C C T A T C T T C G G C G A G A G C G A G G A C T A C G A T G A C C T C G G C 3780

AS Q V V T G E A V T P S V I D N I L S K I E N E Y E V L Y L K 1287
 gp190ⁿ A A A A A A A A A A A A A A A A T T T A T T A T T G T A T A
 gp190^s C A G G T G C T C A C C G G T G A G G C T G T C A C T C C T C C G T G A T T G A T A A C A T T C T G T C C A A A T C G A G A A C C A A T A C G A A G T G C T C T A T C T G A A A 3870

AS P L A G V Y R S L K K Q L E N N V H T F N V N V K D I L N S 1317
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 gp190^s C C T C T G C C A G G C G T C T A T A G G T C T C T A A G A A A C A G C T G G A G A A T A A C G T G A C C T C A A T G T C A A C G T G A A G G A C A T T C T G A A C A C C 3960

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AS D P Y K F L N K E K R D K F L S S Y N Y I K D S I D T D I N 1377
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 gp190^s G A C C C A T A C A A G T T C C T C A A T A A A G A G A G G G A T A A A T T C T G T C A G T T A C A A C T A T A T C A A G G A C T C C A T C G A C A C C G A T A T C A A T 4140

AS F A N D V L G Y Y K I L S E K Y K S D L D S I K K Y I N D K 1407
 gp190ⁿ T A T T A
 gp190^s T T C C C T A A T G A T G T C C T G G G G T A T T A C A A G A T C C T G A C C G A A A A T A C A A G T C T G A C C T T G A C T C T A T T A A A A G T A T A T C A A C G A T A A G 4230

AS Q G E N E K Y L P F L N N I E T L Y K T V N D K I D L F V I 1437
 gp190ⁿ T A G C T T A C T T T G T A T A T T T T T T T T T A T T
 gp190^s C A A G G C G A G A A T G A A A A T A T T C C C C T T C C T G A A T A A C A T C G A A A C C C T G T A C A A G A C A G T G A A C G A C A A A A T C G A C C T C T T C G T A A T T 4320

AS H L E A K V L N Y T Y E K S N V E V K I K E L N Y L K T I Q 1467
 gp190ⁿ T T A A A A A T A T A T A T A T C A C A A A A A A A A A T T A
 gp190^s C A C C T G G A G C C C A A G C C C C A A C T A T A C T T A C G A G A A G A C A A T G T G G A A G T T A A A A T C A A G G A G C T G A A C T A C C T C A A A C A A T C C A A 4410

AS D K L A D F K K N N N F V G I A D L S T D Y N E N N L L T K 1497
 gp190ⁿ A T T A T T A
 gp190^s G A C A A G C T G G C A G A T T T C A A G A A A A A T A A C A A T T C C T G G A A T T G C A G A C C T G C T A C C G A T T A A C C A C A A C A A T C C T G A C C A A G 4500

AS F L S T G M V F E N L A K T V L S N L L D G N L O G H L N I 1527
 gp190ⁿ C T A G T A T T T T T T C T T A T C T T A T T A T A T T A
 gp190^s T T T C T G T C C A C T G G C A T G G T G T T C G A A A A C C T C G C A A A C A G T G C T G A C C A A T C T G C T G A C G G C A A C C T G C A G G C C A T C T G A A C A T C 4590

AS S Q B Q C V K K Q C P Q N S G C F R E L D E R E E C K C L L 1557
 gp190ⁿ A
 gp190^s T C C C A G C A C C A A T C C C T G A A G A A A C A G T G C C C C A G A A T A G C G C T G T T C A G G C A T C T G G A C G A C G C G A A G A G T G C A A G T G T C T C C T G 4680

AS N Y K Q E G D K C V E N P N P T C N E N N G G C D A D A K C 1587
 gp190ⁿ T T A T T A T T T T C T T A T A T A C T
 gp190^s A A C T A C A A A A G A A G A G A T A A G T C C G T G G A A A C C C A A C C C T A C C T G C A A T G A A A C A A T G G C G G T G T G A C C C G A T C C A A A T G C 4770

AS T E E D S G S N G K K I T C E C T K P D S Y P L F D G I F C 1617
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 gp190^s A C C G A G A A G A C A G C G C C T C T A A C G G A A G A A A A T C A C A T G C G A G T G T A C T A A G C C C G A C T C C T A T C C A C T C T T C G A C G G G A T T T T T T G C 4860

AS S S S N F L G I F F L L I L H L I L Y S F I * 1639
 gp190ⁿ A G T T C C T A A C A C A T A T A A T A T A T
 gp190^s T C C A G C T C T A A T T C C T G G C C A T C T C T C C C T G A T C C T C A T G C T G A C C T G T A C A G C T T C A T C T A A T A G A T C G A T C G 4940

stop codon: C1a 1

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Fig. 3D

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| | N'-terminus | C'-terminus |
|------------------|-------------------|------------------------------------|
| gp190s1 Sequence | | |
| DNA Sequence | GCACGCGTATGAAATC | AGCTCTAATTAAATAGGCGGCCGCATCGATGGC |
| AA Sequence | Mlu I Met Lys Ile | Ser Ser Asn stop codon Not I Cla I |
| AA Position | 1 2 3 | 1619 1620 1621 |
| gp190s2 Sequence | | |
| DNA Sequence | CCGGATCCGTGACCCAC | AGCTCTAATTAAATAGGCGGCCGCATCGATGGC |
| AA Sequence | BamHI Val Thr His | Ser Ser Asn stop codon Not I Cla I |
| AA Position | 20 21 22 | 1619 1620 1621 |

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Fig. 4A

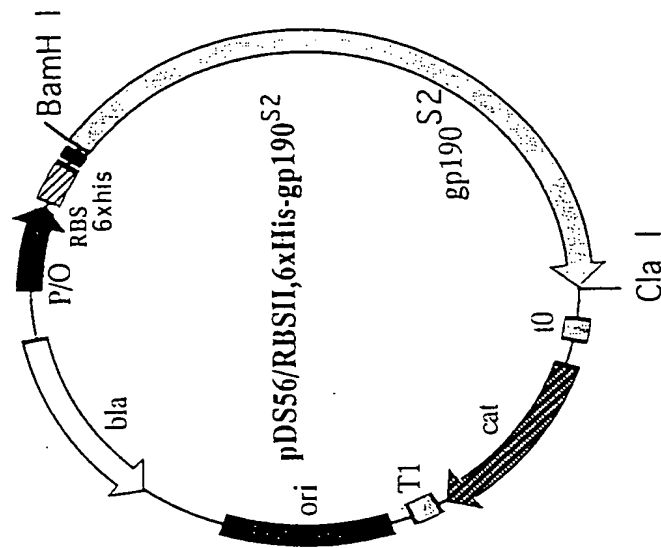


Fig. 4B

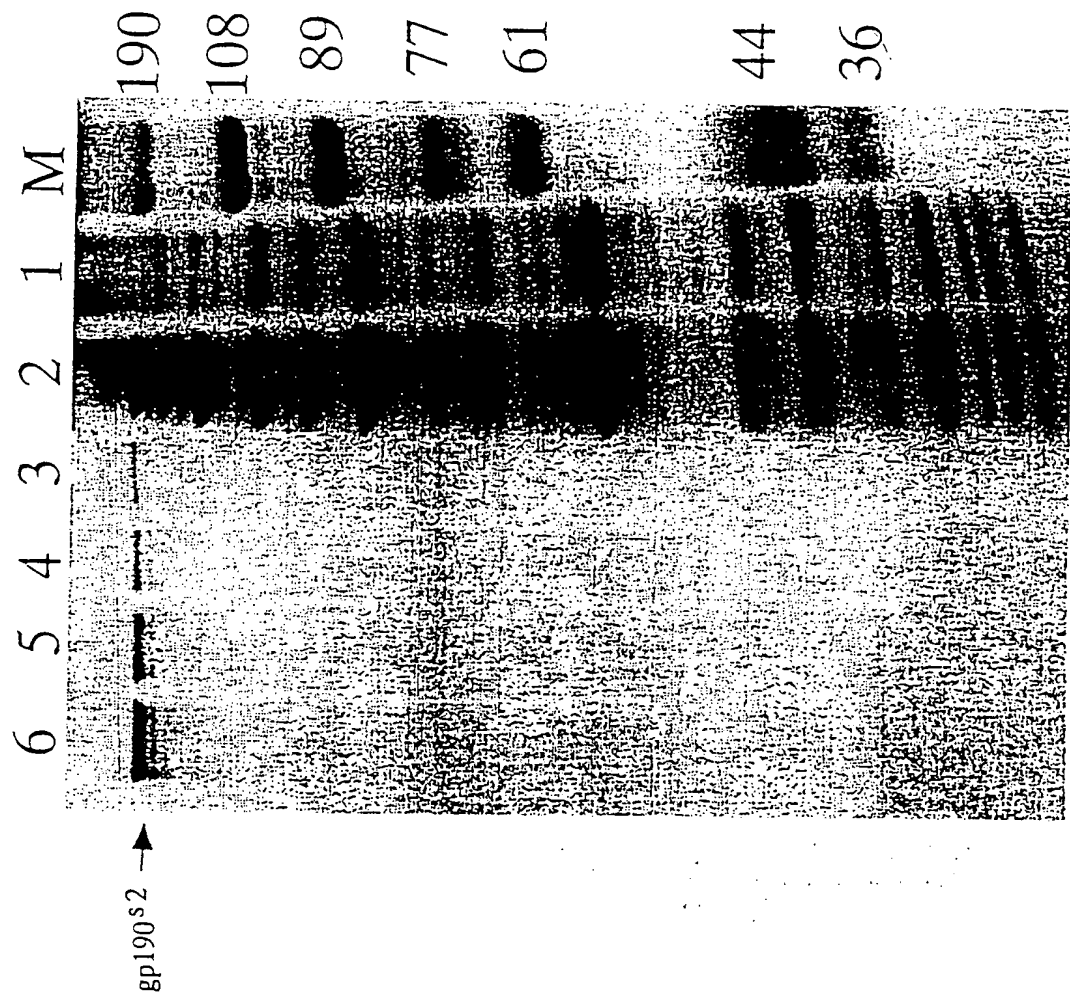


Fig. 5A

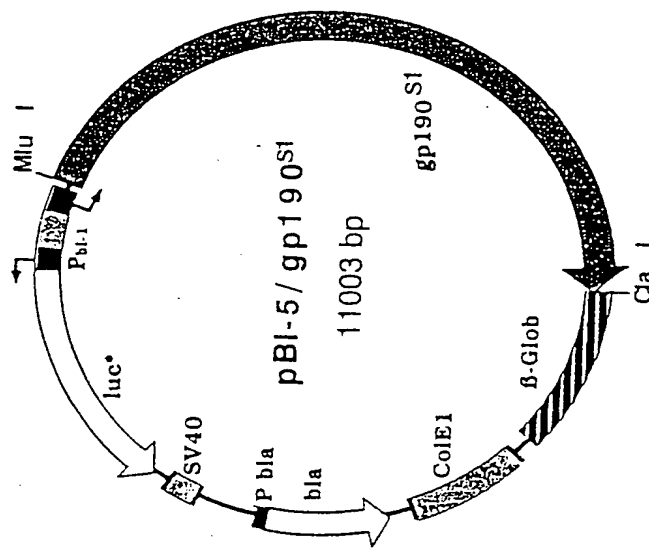


Fig. 5B

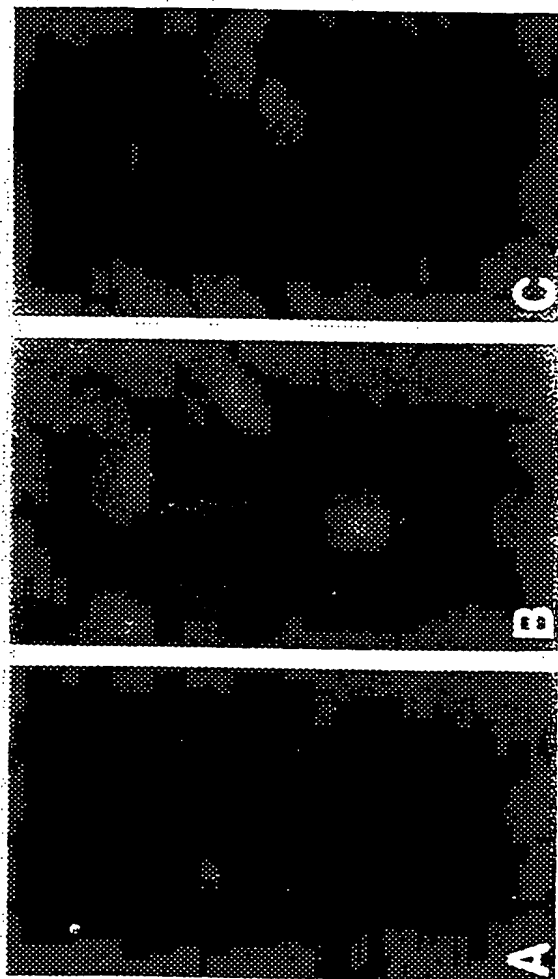


Fig. 5C

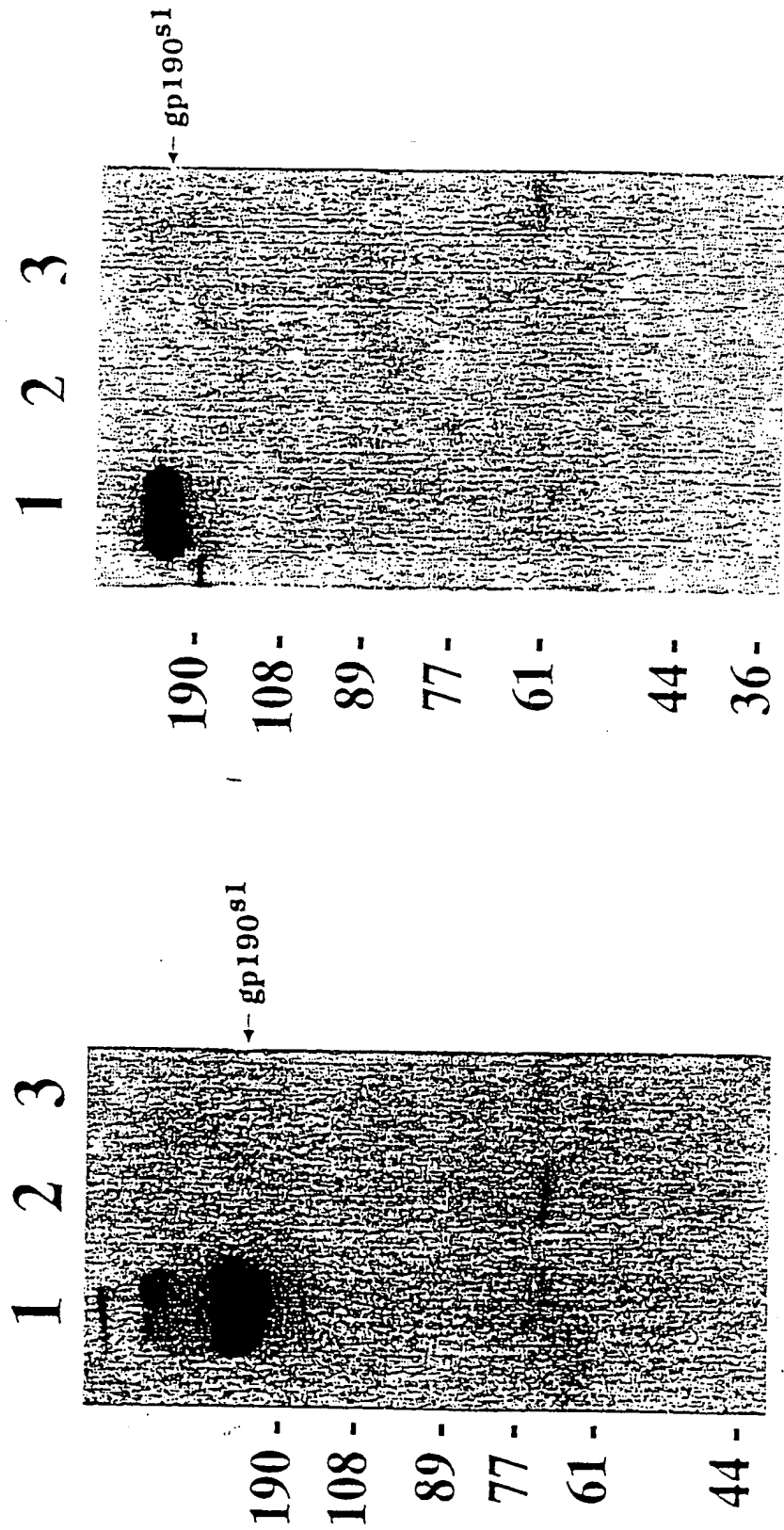


Fig. 6A

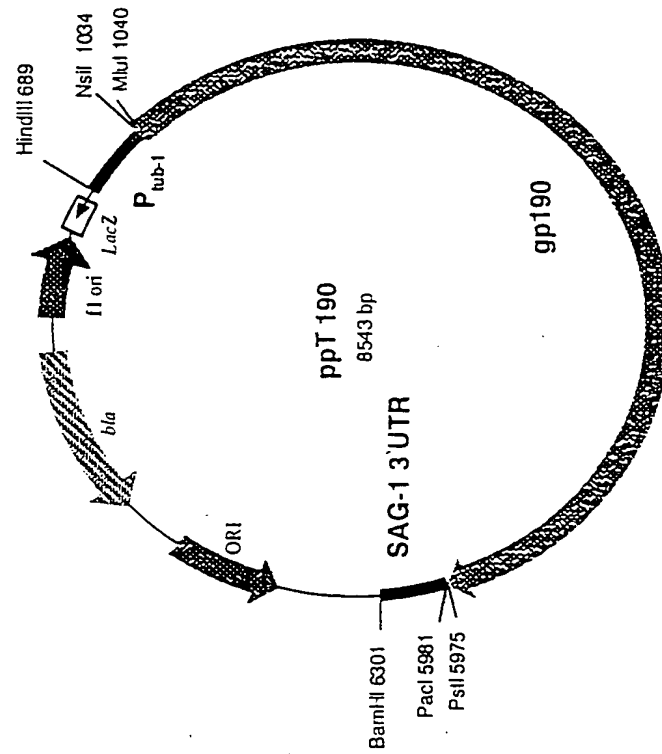
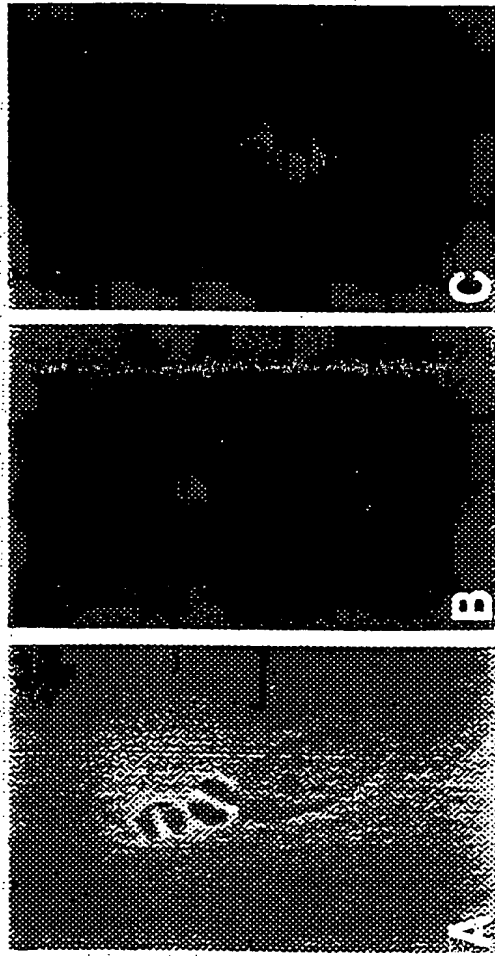


Fig. 6B



0 662080" 42869260 0

3

2

1

190-

108-

89-

77-

61-

Fig. 6c